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NOTES ON THE VEGETATION OF THE LOWER WABASH VALLEY.

BY ROBERT RIDGWAY.

III. — THE WOODS AND PRAIRIES OF THE UPLAND PORTIONS.

The woods which extend back from the river bluffs toward the prairies are decidedly different in their character from those of the alluvial bottoms. The trees are of a lighter growth, though the timber is by no means small, and the species are fewer in number, while three or four kinds usually prevail largely over the others. The predominating trees are several species of oaks (*Quercus*) and hickories (*Carya*), the species of which vary according to the locality. The aspect of the undergrowth is yet more different, lacking entirely that rankness which the herbaceous plants attain in the bottom-lands, while it is more scant, and perhaps less varied. It often consists of merely a younger growth of the same species as the larger trees, this mixed with patches of hazel (*Corylus Americana*) and, more or less generally, with thickets of wild plum (*Prunus Americana*) and crab apple (*Pyrus coronaria*) ; the most conspicuous and prevalent herbaceous plants being the May apple (*Podophyllum peltatum*), Columbo (*Frasera Carolinensis*), and Indian turnip (*Arisœma triphyllum*). These, of course, are associated with a vast multitude of other plants, many of them equally striking, and often locally as prevalent, but they vary so much with the locality that we will not attempt to name them here. The comparative thinness of the undergrowth of these woods is easily explained by the dryness of the soil, which is owing both to its higher location and the different geological formation upon which it rests. In consequence of this, the ground is covered throughout the year with a deep deposit of dead leaves, which effectually suppresses the growth of a rank herbage. In the bottom-lands, on the contrary, the ground is continually wet, so that the fallen leaves rapidly decay, while their moist decomposition generates a heat peculiarly favorable to the very luxuriant growth of the herbaceous plants. The vines of these dry woods are, however, not less beautiful and luxuriant than those of the bottom-lands, for, with the exception of *Tecoma radicans*, *Bignonia* *capreolata*, and several species of *Smilax*, which are usually absent here, they are of the same species; while the hop (*Humulus lupulus*), wild yam (*Dioscorea villosa*) and climbing rose (*Rosa setigera*), are decidedly characteristic of the dry woods.

The "Oak Openings" are a beautiful modification of these woods, and form a feature strikingly characteristic of the prairie regions of the Mississippi Valley; and nowhere are they more attractive than in southern Illinois. They are usually found in the region where the timber and prairie meet. Their most striking peculiarity is the symmetrical shape, uniform size and compact foliage, of the prairie oaks (different species, according to the locality, but usually the *Quercus imbricaria*, *Q. nigra* or, in damp situations, *Q. palustris*), which, almost exclusively, compose them, and especially the smoothness and fresh appearance of the clean, bright green sward beneath them. To do them justice, we cannot do better than quote from a very truthful description which we have lately read:—"They (the trees) rise from a grassy turf seldom encumbered with brushwood, but not unfrequently broken by jungles of rich and gaudy flowering plants, and of dwarf sumac. Among the oak openings you find some of the most lovely landscapes of the West, and travel for miles and miles through varied park scenery of natural growth, with all the diversity of gently swelling hill and dale; here, trees grouped or standing single—and there, arranged in long avenues, as if laid out by human hands, with slips of open meadow between them. Sometimes the openings are interrupted with numerous clear lakes, and with this addition become enchantingly beautiful." [Encyclopædia of Geography; Thos. E. Bradford, III, 562; 1840.] To this description, we can only add that when viewed from across a meadow, the groves present a symmetry in the trees, a uniformity in their size and shape, and a compactness and richness of foliage, never excelled, and seldom, if ever, equalled, in the best-kept artificial park. The lower branches of all the trees begin at a uniform level, and the space beneath is left perfectly free from brushwood or rubbish of any kind, so that under the straight line marking the lower limit of the foliage, there is seen only the well-shapen trunks, rising from a beautiful sward of the freshest green. The trees about the border are often beautifully canopied by a matted covering of wild grape, while the vines of this species, coiled or twisted into fantastic and artistic shapes, sometimes lend an additional beauty to the groves themselves.

The "Barrens" are sections covered with a scrubby wood of small but growing trees, their growth choked with a nearly impenetrable jungle of varied shrubbery. Comparatively few years ago they were all open grassy prairie, but as soon as the country became settled the young trees began to sprout up, until gradually they have become entirely clothed with thick young forest. Twenty years from now, they will have lost their present character, and become transformed into the usual woods of the region.*

Many former prairies of often ten miles or more in breadth are now entirely overgrown with a dense scrub of hazel (*Corylus Americana*), sumac (*Rhus*—several species), blackberry (*Rubus villosus*), wild plum (*Prunus Americana* and *P. chicasa?*), crab apple (*Pyrus coronaria*) "queen of the prairie" (*Spiræa lobata*), wild roses (*Rosa Carolina* and *R. setigera*) and other kindred shrubs, or small trees, among which spring up a more scattered growth of forest-trees, chiefly oaks (as the *Q. obtusiloba*, *Q. nigra*, and a variety of *Q. falcata*) and hickories. For floral display, no sections of the country are so beautiful as the "barrens." The crimson cones of the sumacs; the showy climbing rose (*Rosa setigera*), which ascends through the trees to their very tops; numerous flowering vines, among which the Leguminosæ and Caprifoliaceæ contribute each a variety of species; and the host of gaudy-flowered plants belonging to the Compositæ, which still linger as remnants of the prairie vegetation, produce not only a gaudy, but also a richly varied appearance, which is still further beautified by the lovely vine-canopies with which many of the trees are clothed.

The prairies which adjoin the forest region of the Wabash Valley are mostly of limited extent, being mere indentations into the timber, or "bays," of the larger ones toward the middle of the State. Most of them have now lost their primitive aspect, being either largely under cultivation or else trampled by herds of stock. According to the settlers it is now a rare, if a possible, thing, to find a prairie where the grass is as tall, the weeds as rank and coarse, and the flowers as showy, as they were twenty or thirty years ago. As they now are, a conspicuous feature in their flora is the frequent clumps of the *Hibiscus grandiflorus*, or great-flowered mallow, which grows along the banks of streams, the border of ponds, or other moist places. This plant occurs more or less abundantly on nearly all the prairies of Richland, Lawrence, Wabash and Edwards counties, and perhaps throughout the state south of latitude 38° 25′. It is one of the most conspicuous plants of the prairie, for when in bloom, its large, crimson-centred white flowers sometimes measure nearly a foot in expanse.

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* It is asserted by all the old settlers of the country, that there is now a far greater area of timber in this section than there was twenty, thirty, or even forty years ago, notwithstanding the fact that the timber is constantly cut for fencing, building and other purposes to which civilization sacrifices the forests. The encroachment of the woods upon the prairies goes rapidly and steadily on, and seems to supply new timber faster than the old is destroyed.

THE GIGANTIC MAMMALS OF THE GENUS EOBASILEUS.*

BY PROFESSOR E. D. COPE.

A genus closely allied to the Proboscidea called Bathmodon, was recently (February, 1872) described by the writer as represented by remains of the Eocene Formations of Wyoming Territory. Investigations prosecuted during the present season, in the same region, under the direction of Prof. F. V. Hayden's Geological Survey of the territories, have resulted in a better acquaintance with these forms, and an approximation to a true estimate of their affinities.

The present genus, which is new and may be called *Eobasileus*,† is proven to be quite distinct from *Bathmodon* in the dentition of the premaxillary bone. It is narrow and edentulous and separated from its fellow by a deep notch. The front of the maxillary bone supports a tusk which represents the canine. It is shorter than in the walrus, but longer than in the sabre toothed tigers, and resembles the canines of the latter in being compressed and sharp-edged in front and behind. A long edentulous space follows the canine, before the molars commence. These are of relatively small size, and number 4 – 2. They all exhibit a single crescentic crest with angle inwards; but becoming straighter on the anterior teeth, where they are little curved. There is a single tubercle within the crescent, which with wearing soon becomes

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* Read at the Dubuque Meeting of the American Association for the Advancement of Science. 1872.

† Proceedings of the American Philosophical Society, 1872, p. 485 (August 20).